Calendar No. 60

108th Congress 1st Session	SENATE	REPORT 108–34

DIGITAL AND WIRELESS NETWORK TECHNOLOGY PROGRAM ACT OF 2003

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

on

S. 196

APRIL 7, 2003.—Ordered to be printed

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

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DIGITAL AND WIRELESS NETWORK TECHNOLOGY PROGRAM ACT OF 2003

APRIL 7, 2003.—Ordered to be printed

Mr. MCCAIN, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 196]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 196), "To establish a digital and wireless network technology program, and for other purposes", having considered the same, reports favorably thereon with amendments and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purpose of the bill, as amended, is to establish a $250 million per year grant program within the National Science Foundation (NSF) from fiscal years 2004 through 2008 to strengthen the ability of minority-serving institutions (MSIs), which include Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and tribal colleges and universities, to provide instruction in digital and wireless network technologies, and enhance the nation's digital and wireless infrastructure by increasing the national investment in telecommunications and technology infrastructure at these institutions.

The bill is designed to close the "economic opportunity divide" that exists between the graduates of MSIs and graduates of other institutions of higher learning, and thus, improve the quality of education for students at MSIs. These institutions will continue to play an important role in providing the nation with a well educated and talented workforce.

BACKGROUND AND NEEDS

HISTORICALLY BLACK COLLEGES AND UNIVERSITIES

In October 2000, the National Telecommunications and Information Administration (NTIA) released the report, *Historically Black Colleges and Universities: An Assessment of Networking and Connectivity*. The report was the product of a study to gain an overall perspective of the networking capabilities and connectivity of HBCUs, and to obtain data that would evaluate the capacity of HBCUs to function as part of the national global network. The study was sent to 118 colleges and universities. Eighty colleges (68 percent) responded.

The report found that 88 percent of the respondents had access to T–1 lines, which provide a bandwidth of a specific speed rate and capacity suitable for basic functions, from their local Internet service providers and operating companies. Forty-three percent of the respondents have Asynchronous Transfer Mode (ATM) technology that allows for greater bandwidth and broader Internet technology access. Of the 43 percent having such access, only 45 percent indicated they use the technology. Twenty-nine percent of HBCUs report having access to wireless and 43 percent of those with access were using it.

These technology restrictions limit HBCUs' abilities to fully utilize existing technology applications and connect with other institutions of higher education. For example, many schools do not have video streaming capability. Only 17 percent of the respondents reported minimal use of collaborative groupware, online registration, e-commerce, and other applications. Fewer than 15 percent of the respondents offered distance-learning programs. HBCU connectivity with libraries, State college systems, the Federal government, and other resources remains limited.

In addition, the report found limited student computer ownership. No HBCU reported requiring computer ownership, and only 15 percent recommended that students bring their own computers to campus. Of the respondents, 60 of the schools estimated that 25 percent of their students owned computers, and 13 schools reported that no students owned computers. Over 75 percent of HBCUs' students rely on the universities to provide computers. However, only 50 percent of the respondents provide students access to computers in computer laboratories, libraries, classrooms, and other locations, while 45 percent have dormitory common areas with access to the campus backbone.

The NTIA report suggested that the following weaknesses must be addressed: (1) improvement of high-speed connectivity rates; (2) dramatic improvement of student to computer ownership ratios; (3) improvement of the strategic planning process; and (4) willingness to incorporate innovative technologies into campus networks.

TRIBAL COLLEGES

Tribal colleges also have demonstrated a need for improved technology infrastructure. For example, only one tribal college currently has funding for high bandwidth connectivity. All of the tribal colleges have some degree of T–1 access, but most only have fractional T–1 access. In addition, tribal colleges struggle to hire and maintain computer technicians, offering salaries at half of the industry

averages. At Dull Knife Memorial College in Montana, for example, only two computers provide Internet access for 240 students. Little Big Horn College in Montana would like to extend its technology classes online to students in Pryor, Montana, which is 85 miles away. However, the only high-speed Internet connection currently available in Pryor is used by a medical center. High costs prevent the installation of a second high-speed Internet line. In addition, only two of the 500 students at Little Big Horn College have computers at home.

Physical infrastructure is also a problem at tribal colleges. According to the American Indian College Fund, most tribal colleges are located on poor, isolated Indian reservations, and operate in trailers, converted warehouses, or abandoned buildings. Until recently, accommodations at one tribal college included a tin shack abandoned by a uranium mining company.

Despite these bleak examples, there are tribal colleges that have crossed the "digital divide." Though far from state-of-the-art, the Crownpoint Institute of Technology in New Mexico has 250 computers linked to the Internet via satellite and a 90 percent technology job placement rate.

HISPANIC-SERVING INSTITUTIONS

HSIs are two- and four-year colleges and universities, whose Hispanic American student enrollment is 25 percent or greater of total enrollment. Hispanics currently represent 14.5 percent (3.6 million) of the total traditional college-age population. By 2006, Hispanic undergraduates are expected to outnumber African-American undergraduates for the first time. Over one million Hispanics will be academically prepared to attend college by 2015. In 1996, Hispanics composed 4 percent of graduate students and had particularly low representation in advanced degrees in engineering, mathematics, computer, and physical sciences. HSIs suffer technology problems similar to those of HBCUs, according to the Hispanic Association of Colleges and Universities which represents HSIs.

LEGISLATIVE HISTORY

S. 196 was introduced on January 17, 2003, by Senator Allen. Senators McCain, Hollings, Campbell, Cochran, DeWine, Fitzgerald, Graham, Grassley, Hutchison, Lott, Miller, Santorum, Sessions, Stevens, Warner, Domenici, Talent, and Kerry are co-sponsors of the legislation.

S. 196 was referred to the Committee on Commerce, Science, and Transportation and a hearing on the legislation was held on February 13, 2003. Witnesses included Dr. William DeLauder, President, Delaware State University; Dr. Ricardo Fernandez, President, Herbert H. Lehman College, City University of New York; The Honorable Floyd Flake, President, Wilberforce University; Dr. Marie McDemmond, President, Norfolk State University; and Dr. Gerald "Carty" Monette, President, Turtle Mountain Community College. These witnesses discussed the technology infrastructure needs at MSIs, and the efforts by such institutions to address their technology needs.

On March 13, 2003, the Committee met in open executive session and, by a voice vote, ordered S. 196 reported with amendments.

The amendments offered by Senator Allen eliminate the use of awards under the program to train institutions' board members, add remote technical support to the ways in which institutions may receive technical assistance under the program, and allow for the use of funds for planning grants, consistent with other NSF programs, and the development of strategic plans for information technology investments.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, March 18, 2003.

Hon. JOHN MCCAIN,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN. The Congressional Budget Office has prepared the enclosed cost estimate for S. 196, the Digital and Wireless Network Technology Program Act of 2003.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Kathleen Gramp.

Sincerely,

DOUGLAS HOLTZ-EAKIN,
Director.

Enclosure.

S. 196—Digital and Wireless Network Technology Program Act of 2003

Summary: S. 196 would create a new grant program at the National Science Foundation (NSF) for educational institutions that serve minority students. Eligible institutions could use the funds to improve instructional capabilities and infrastructure related to digital and wireless technologies. The bill would authorize the appropriation of $250 million for each of fiscal years 2004 through 2008 for this program and would require grant recipients to provide matching funds under certain conditions. A new Office of Digital and Wireless Network Technology would administer the program with guidance from a special advisory council.

Assuming appropriation of the authorized amounts, CBO estimates that implementing S. 196 would cost $823 million over the 2004–2008 period. CBO estimates that enacting this bill would have no effect on direct spending or revenues.

S. 196 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated cost to the Federal Government: The estimated budgetary impact of S. 196 is shown in the following table. For this estimate, CBO assumes that the amounts authorized will be appropriated near the start of each fiscal year and that outlays will occur

at rates similar to other NSF programs. The costs of this legislation fall within budget function 250 (general science, space, and technology).

	By fiscal year, in million of dollars—					
	2003	2004	2005	2006	2007	2008
CHANGES IN SPENDING SUBJECT TO APPROPRIATION						
Authorization Level	0	250	250	250	250	250
Estimated Outlays	0	30	130	200	228	235

Estimated impact on state, local, and tribal governments: S. 196 contains no intergovernmental mandates as defined in UMRA and would impose no costs on state, local, or tribal governments. The bill would benefit public universities by authorizing $250 million per year, for fiscal years 2004 through 2008, for institutions of higher education, including public universities, to strengthen their capacity to provide instruction in digital network technologies. Any costs incurred by public universities to create annual reports, provide requested data to NSF, or to match federal funds, would be voluntary. Any costs incurred by state and local education agencies that participate in joint ventures with the grantees also would be voluntary.

Estimated impact on the private sector: This bill contains no new private-sector mandates as defined in UMRA.

Estimate prepared by: Federal Costs: Kathleen Gramp; Impact on State, Local, and Tribal Governments: Greg Waring; and Impact on the Private Sector: Jean Talarico.

Estimate approved by: Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

The Committee believes that the bill would not subject any individuals or businesses affected by the legislation to any additional regulation.

ECONOMIC IMPACT

This legislation would not have an adverse impact on the nation. It authorizes funding for digital and wireless network technologies related awards to MSIs.

PRIVACY

This legislation would not have a negative impact on the personal privacy of individuals.

PAPERWORK

This legislation would require each award recipient to provide to NSF any relevant institutional statistical or demographic data as requested by NSF. Each award recipient would be required to submit an annual report to the Director of NSF detailing its use of

funding. The Director would be required to submit to Congress a bi-annual report based upon an evaluation of the program including a recommendation on the need for continued Federal support of the program.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title

Section 1 provides that the bill, if enacted, would be cited as the "Digital and Wireless Network Technology Program Act of 2003."

Section 2. Establishment of office

Section 2 would establish an Office of Digital and Wireless Network Technology within the NSF to serve the following purposes: to strengthen the ability of eligible institutions to provide instruction via digital and wireless networks through grants, contracts, or cooperative agreements; and to strengthen the national digital and wireless infrastructure by increasing national investments in eligible institutions. The Committee intends that funding for administrative and management support for this office will be provided within the funding authorized under section 9 of the bill.

Section 3. Activities supported

Section 3 would allow the Office of Digital and Wireless Network Technology to award grants, contracts, or cooperative agreements to eligible institutions. Recipients would be allowed to use such awards for the following purposes:

- To acquire equipment, instrumentation, networking capability, hardware and software, digital network technology, wireless technology, and infrastructure;
- To develop and provide educational services for students or faculty seeking an approved degree or certificate;
- To provide teacher education, library and media specialist training, and preschool and teacher aid certification to those individuals who want to acquire or enhance technology skills for use in the classroom;
- To implement joint projects and consortia to provide technology education to a State or State education agency, local education agency, community-based organizations, national non-profit organizations, or businesses, including minority businesses;
- To provide professional development to administrators and faculty of institutions with institutional responsibility for technology education;
- To provide eligible institutions with capacity-building technical assistance through remote technical support, workshops, distance learning, new technologies, and other technological applications;
- To foster the use of information communications technology to increase scientific, mathematical, engineering, and technology instruction and research; and
- To develop proposals to be submitted under the Act and to develop strategic plans for information technology investments.

For any awards to develop proposals to be submitted under the Act or for planning grants, the Committee expects that the Director

will establish a procedure for the awarding of such grants, and is expected that such grants will not exceed $100,000.

Section 4. Application and review procedure

Subsection (a) would require that for an institution to be eligible to receive a grant, contract, or cooperative agreement, it must submit an application to the Director. Such an application would be submitted according to requirements developed by the Director. The Director, along with the Advisory Council established under subsection (b), would establish an acceptance procedure, in addition to a notification procedure, and a statement regarding the availability of funds. The Committee expects the Director to work with the Advisory Committee to establish the appropriate review and selection criteria for evaluation of proposals received under the program.

Subsection (b) would require the Director to establish an Advisory Council. The Advisory Council would be responsible for advising the Director on the best approaches for involving eligible institutions in the activities described in section 3. In selecting the members of the Advisory Council, the Director may consult with representatives of appropriate organizations, including representatives of eligible institutions, to ensure that the membership of the advisory council reflects participation by technology and telecommunications institutions, minority businesses, communities of eligible institutions, Federal agency personnel, and other individuals who are knowledgeable about eligible institutions and technology issues.

Subsection (c) would require each institution awarded a grant, contract, or cooperative agreement under section 2 to provide the new Office of Digital and Wireless Technology with any relevant institutional statistical or demographic data it requests.

Subsection (d) would require the Director to hold an annual meeting with those institutions that have received awards. Such meetings are expected to foster collaborations and capacity building activities among eligible institutions and disseminate information and ideas generated as such meetings.

Section 5. Matching requirement

Section 5 would require that when an institution is awarded a grant, contract, or cooperative agreement by the Director, it make available non-Federal contributions in an amount of that is 25 percent of the award or $500,000, whichever is the lesser amount. The Director would be required to waive the matching requirement for any institution with no endowment, or an endowment worth less than $50,000,000. Based upon testimony concerning the financial institutions' financial situations given at the February 13 hearing on the bill, the Committee expects that a majority of the MSIs would qualify for exemption from this matching requirement.

Section 6. Limitations

Subsection (a) would establish that an institution awarded more than $2,500,000 shall not be eligible for another grant, contract, or cooperative agreement, until every other eligible institution that has applied for an award has received one.

Subsection (b) would clarify that even when each grant, contract, or cooperative agreement has been awarded for the implementation of a consortium or joint project, the funding shall be made available to, and administered by, an eligible institution.

Section 7. Annual report and evaluation

Subsection (a) would require each institution awarded a grant, contract, or cooperative agreement, to submit an annual report to the Director detailing its use of the funding.

Subsection (b) would require that the Director, in consultation with the Secretary of Education, review the reports required under subsection (a) and evaluate the program authorized by section 3 on the basis of those reports every 2 years.

Subsection (c) would require that the Director, as part of the evaluation of subsection (b), describe the activities undertaken and assess the short- and long-range impact of activities carried out with the use of the awards on the students, faculty, and staff of the institutions.

Subsection (d) would require the Director to submit a report to Congress based on the evaluation. The report shall include such recommendations, as may be appropriate, including recommendations concerning the continuing need for Federal support of the program.

Section 8. Definitions

This section would define the terms "eligible institution," "Director," and "minority business." The term "eligible institution" is as defined in the Higher Education Act of 1965 (20 U.S.C. 1061(2)). The term "Director" means the Director of the National Science Foundation. The term "minority business" includes HUBZone small businesses as defined in section 3(p) of the Small Business Act (15 U.S.C. 632(p).

Section 9. Authorization of appropriations

Section 9 would authorize $250,000,000 to the Director of the NSF for each of fiscal years 2004 through 2008, to carry out the Act.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

○